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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/735,872 | 12/13/2000 | Yigal Katzir | 140/01667 | 9284 |
| 23373 | 7590 | 08/22/2005 | EXAMINER | |
| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | NGHIEM, MICHAEL P | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2863 | |

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 09/735,872 | | KATZIR ET AL. | |
| | Examiner | | Art Unit | |
| | Michael P. Nghiem | | 2863 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-8, 10-25, 29-54, 61, 66, 67 and 69-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 61, 67, 69 and 70 is/are allowed.
- 6) ☒ Claim(s) 5-8, 10-25, 29-54 and 71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Amendment filed on June 6, 2005 has been acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 5-8, 10-25, 29-48, and 71 are rejected under 35 U.S.C. 102(e) as being anticipated by Katzir et al. (US 6,275,514).

Regarding claims 5, 29, and 71, Katzir et al. discloses an apparatus and method (Fig. 1) for recording an image on a photosensitive surface (35), comprising:

- a pulsed light source (18) that produces pulsed light (20);
- a data signal source (column 1, lines 23-24) that provides data signals (Katzir et al. uses the same modulator as Gross, US 5,309,178, column 8, lines 65-67; modulator 20 receives data signals from data signal sources, Fig. 1a);
- a modulator (55) that receives the pulsed light and the data signals (column 1, lines 23-24) and selectively modulates the pulsed light with a modulating signal

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responsive to the data signals (Fig. 1, Fig. 1a of Gross) at a data rate that is higher than a pulse repetition rate of the pulsed light (Abstract, lines 5-8);

- a scanner that scans the modulated pulsed light over the surface (column 16, lines 29-31), said modulated pulsed light being delivered pulse by pulse to different spatially overlapping regions of the surface to build up a pixelized pattern (overlapping beams 48, 54, 56' converge on overlapping regions 33, Fig. 2b, since mirror 31 scans 33 in the X direction, column 8, lines 62-64, the beams 48, 54, 56' converge on different overlapping regions).

Regarding claims 6 and 30, Katzir et al. discloses that the pulsed light source is a line source and wherein the modulator spatially modulates the line (column 5, lines 3-4).

Regarding claims 7 and 31, Katzir et al. discloses that the modulator independently modulates different sections of the line at the data rate (column 14, lines 14-16).

Regarding claims 8 and 32, Katzir et al. discloses that the modulator is operative to provide modulation that is asynchronous with the pulses (column 14, lines 17-18).

Regarding claims 10 and 33, Katzir et al. discloses that wherein the modulated light scans over the surface in a first direction and wherein the surface moves in a direction perpendicular to the direction of scanning such that the surface is illuminated by a raster scan (column 15, lines 10-14).

Regarding claims 11 and 34, Katzir et al. discloses that wherein the photosensitive surface is a photoresist (column 15, lines 15-16).

Regarding claims 12 and 35, Katzir et al. discloses that wherein the pulsed light comprises a laser beam (Abstract, lines 3-4).

Regarding claims 13, 36, and 71, Katzir et al. discloses that the pulsed light is produced utilizing a pulsed light generator comprising: a beam generator that produces an initial pulsed light beam having an initial pulse repetition rate; and a pulse repetition rate multiplier, which receives the initial pulsed light beam and produces at least one pulsed light beam having a higher pulse repetition rate than the initial rate (Abstract, lines 3-8).

Regarding claims 14 and 37, Katzir et al. discloses a second repetition rate multiplier that receives an output beam from the repetition rate multiplier and produces an output beam having a repetition rate higher than the repetition rate of the beam that it receives (column 4, lines 29-33).

Regarding claims 15 and 38, Katzir et al. discloses that wherein the first repetition rate multiplier and the second multiplication rate multiplier each double the repetition rate (column 4, lines 34-38).

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Regarding claims 16 and 39, Katzir et al. discloses that the higher pulse repetition rate is twice the initial pulse rate (column 5, lines 45-46).

Regarding claims 17 and 40, Katzir et al. discloses that the higher pulse repetition rate is three times the initial pulse rate (column 5, lines 45-46).

Regarding claims 18 and 41, Katzir et al. discloses that the higher pulse repetition rate is four times the initial pulse rate (column 5, lines 45-46).

Regarding claims 19 and 42, Katzir et al. discloses that the higher pulse repetition rate is greater than four times the initial pulse rate (column 5, lines 45-46).

Regarding claims 20 and 43, Katzir et al. discloses that the initial pulsed light beam is a laser beam (column 5, line 47).

Regarding claims 21 and 44, Katzir et al. discloses that wherein the beam generator comprises: a pulsed laser operating at an initial laser frequency; and a laser frequency converter that increases the laser frequency to produce the light beam (column 13, lines 32-34).

Regarding claims 22 and 45, Katzir et al. discloses that the pulsed laser comprises a mode locked laser (column 16, lines 5-6).

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Regarding claims 23 and 46, Katzir et al. discloses that the pulsed laser is an infrared laser (column 16, lines 7-8).

Regarding claims 24 and 47, Katzir et al. discloses that the initial pulsed light beam is a UV laser beam (column 7, line 19).

Regarding claims 25 and 48, Katzir et al. discloses that the power contained in the higher repetition rate pulses is substantially equal to the power of the initial pulsed light beam (column 14, lines 49-51).

Allowable Subject Matter

Claims 49-54 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.

Claims 61, 66, 67, 69, and 70 are allowed.

Reasons For Allowance

The combination as claimed wherein the modulating signal is operative to modulate at least two successive pulses and wherein an attribute of the modulating

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signal changes between at least some of the two successive pulses (claim 49) or the non-linear medium is an LBO crystal (claim 61) is not disclosed, suggested, or made obvious by the prior art of record.

Response to Arguments

Applicant's arguments filed June 6, 2005 have been fully considered but they are not persuasive.

With respect to the 35 USC 102 rejections, Applicants argue that Katzir does not disclose modulated pulsed light being delivered pulse by pulse to different spatially overlapping regions of a surface to build up a pixelized pattern.

Examiner's position is that Katzir discloses modulated pulsed light being delivered pulse by pulse to different spatially overlapping regions of the surface to build up a pixelized pattern (overlapping beams 48, 54, 56' converge on overlapping regions 33, Fig. 2b, since mirror 31 scans 33 in the X direction, column 8, lines 62-64, the beams 48, 54, 56' converge on different overlapping regions).

Applicants further argue that the Examiner should specifically indicate the grounds of rejection of claim 71 or withdraw the present rejection of this claim.

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The rejection of claim 71 has been addressed with claims 5, 13, 29, and 36 as discussed above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

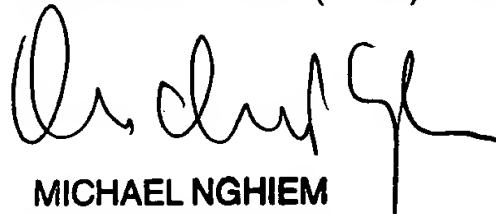
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P Nghiem whose telephone number is (571)

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272-2277. The examiner can normally be reached on M-H.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MICHAEL NGHIEM
PRIMARY EXAMINER

Michael Nghiem

August 17, 2005